Title 129 - Nebraska Air Quality Regulations

Chapter 16 - STACK HEIGHTS; GOOD ENGINEERING PRACTICE (GEP)

001 The degree of emission limitation required of any source for control of any air pollutant shall not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided 002.

002 The provisions of 001 shall not apply to:

002.01 Stack heights in existence, or dispersion techniques implemented prior to December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources which were constructed or reconstructed, or for which major modifications were carried out after December 31, 1970; or

002.02 Coal-fired steam electric generating units, subject to the provisions of Section 118 of the Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

003 No emission limitation will be established, or permit to construct or modify issued, involving any dispersion technique, unless approved by the Council following public hearing noticed at least 30 days in advance. The public notice will announce the availability of any fluid model or field study demonstration.

004 For purposes of this chapter, the definitions and specifications in sections 005 through 008 apply.

005 "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by using that portion of a stack which exceeds good engineering practice stack height, varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant, or increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise. The preceding sentence does not include:

005.01 The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

005.02 The use of smoke management in agricultural or silvicultural prescribed burning;

005.03 The merging of exhaust gas streams where:

005.03A The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

005.03B After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

005.03C Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the Director shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the Director shall deny credit for the effects of such merging in calculating the allowable emissions for the source.

005.04 Episodic restrictions on residential woodburning and open burning;

005.05 Techniques such as manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack, or other selective handling of exhaust gas streams, which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

006 "Excessive concentrations" for the purpose of determining good engineering practice stack height under section 007.04 below mean:

006.01 For sources seeking credit for stack height exceeding that established under section 007.02 and 007.03 below, a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the Director, an alternative emission rate shall be established in consultation with the source owner or operator.

006.02 For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under sections 007.02 and 007.03 below, either a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in section 006.01 above, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or the actual presence of a local nuisance caused by the existing stack, as determined by the Director.

006.03 For sources seeking credit after January 12, 1979 for a stack height determined under sections 007.02 and

007.03 below where the Director requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in sections 007.02 and 007.03, a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

007 "Good Engineering Practice (GEP) Stack Height" means the greater of:

007.01 Sixty-five (65) meters;

007.02 For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required, Hg = 2.5H, provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limit, where:

Hg = good engineering practice stack height measured from the ground level elevation at the base of the stack.

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

007.03 For all other stacks, Hg = H + 1.5L, where:

Hg = good engineering practice stack height measured from the ground level elevation at the base of the stack.

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension (height or projected width) of nearby structure(s).

provided that the Director may require the use of a field study or fluid model to verify GEP stack height for the source; or

007.04 The height demonstrated by a fluid model or a field study approved by the Director, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures, or nearby terrain features.

008 "Nearby" means, as pertains to Good Engineering Practice Stack Height:

008.01 That distance up to five times the lesser of the height or the width dimension of a structure but not greater than 0.8 km (one-half mile), and

008.02 For conducting demonstrations under section 007.04 above that distance not greater than 0.8 km (1/2 mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_T) of the feature, not to exceed 2 miles if such feature achieves a height (H_T) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formula provided in section 007.03 above or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

Enabling Legislation: Neb. Rev. Stat. §§81-1504(1)(2); 81-1505(12)

Legal Citation: Title 129, Ch. 16, Nebraska Department of Environmental Quality

Chapter 16

EPA Rulemakings

CFR: 40 C.F.R. 52.1420(c)

FRM: 67 FR 37325 (05/29/2002)

PRM: 67 FR 37370 (05/29/2002)

State Submission: 06/29/2001

State Final: 12/15/1998

APDB File: NE-46

Description: This revision transferred four definitions related to Stack Height Good Engineering Practice from Chapter 1 to Chapter 16. These rules have previously been approved by EPA.

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CFR: 40 C.F.R. 52.1420(c)(41)

FRM: 60 FR 372 (01/04/95)

PRM: 60 FR 418 (01/04/95)

State Submission: 2/16/94

State Proposal: 9/16/93

State Final: 6/26/94

APDB File: NE-31

Description: The EPA approved the renumbering of this rule as part of the overall recodification of the Nebraska rules. The rule was previously Chapter 5.

Note: All previous versions of the rule are obsolete; the record of prior rulemakings is shown below for historical purposes only.

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CFR: 40 C.F.R. 52.1420(c)(37)

FRM: 54 FR 21059 (5/16/89)

PRM: None

State Submission: 6/15/88

State Proposal: 2/5/88

State Final: 6/5/88

APDB File: NE-21

Description: The EPA reapproved this rule as Chapter 5 as part of an action to update the entire set of regulations in the Nebraska SIP.

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CFR: 40 C.F.R. 52.1420(c)(36)

FRM: 54 FR 7034 (2/16/89)

PRM: None

State Submission: 5/6/86

State Proposal: 10/3/85; 12/17/85

State Final: 5/5/86

APDB File: NE-24

Description: The EPA approved a new rule to incorporate the stack height regulations.

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Difference Between the State and EPA-Approved Regulation

None.